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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,148	09/09/2003	Hideo Kato	15682-003001	5423

26211 7590 03/20/2007
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EXAMINER	
MARTIN, ANGELA J	
ART UNIT	PAPER NUMBER
1745	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/20/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/658,148	KATO ET AL.	
	Examiner	Art Unit	
	Angela J. Martin	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) *14 and 15* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13, 16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is responsive to the Amendment filed on December 14, 2006. The Applicant has added new claim 16. However, the a new rejection is presented for the following reasons of record.

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified translation has been filed on 12/14/06. ***Claim***

Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al., U.S. Pat. No. 5,302,471, in view of Hayashi et al., U.S. Pat. Application Pub. 2002/0146610 A1.

Ito et al., teach a control apparatus for a fuel cell stack comprising: a fuel cell stack having a stacked body formed by stacking fuel cell units together (col. 4, lines 58-68 and col. 1, lines 1-2) and a pair of end plates sandwiching the stacked body therebetween (col. 5, lines 30-35); electrical heaters disposed near the ends of the stacked body or the end plates, respectively (col. 7, lines 4-16); and a control unit which controls the power generation operation in the fuel cell stack (col. 5, lines 1-2), and

which is operatively connected to the electrical heaters, wherein the control unit is adapted to operate the electrical heaters (col. 6, lines 32-39).A control apparatus for a fuel cell stack according to claim 1, wherein each of the electrical heaters is disposed between each of the end plates and one of the fuel cell units disposed at each end of the fuel cell stack (col. 7, lines 4-16). A control apparatus for a fuel cell stack according to claim 1, wherein the fuel cell stack further includes a pair of terminal plates each of which is disposed between each of the end plate and one of the fuel cell units disposed at each end of the fuel cell stack, and wherein each of the electrical heaters is embedded in each of the terminal plates (col. 7, lines 4-16). A control apparatus for a fuel cell stack according to claim 1, wherein each of the electrical heaters is embedded in each of the end plates (col. 7, lines 4-16). A control apparatus for a fuel cell stack according to claim 1, wherein the control unit is adapted to execute the power generation operation in the fuel cell stack in order to supply electrical energy to the electrical heaters (col. 6, lines 32-39). A control apparatus for a fuel cell stack according to claim 1, further comprising temperature sensors for measuring temperature of the fuel cell units, wherein the control unit is adapted to control the electrical heaters depending on the temperature of the fuel cell units measured by the temperature sensors (col. 4, lines 58-68). A control apparatus for a fuel cell stack according to claim 11, wherein one of the temperature sensors is attached to one of the fuel cell units disposed in the middle of the fuel cell stack (col. 4, lines 58-68 and col. 5, lines 1-2). A control apparatus for a fuel cell stack according to claim 12, wherein the control unit is adapted to control the electrical heaters depending on the difference between the

temperature of at least one of the fuel cell units disposed in the middle of the fuel cell stack and the temperature of at least one of the fuel cell units disposed at the ends of the fuel cell stack (Fig. 7). A control apparatus for a fuel cell stack according to claim 12, wherein the electrical heaters are adapted to heat the fuel cell stack (claim 7).

Hayashi et al., teach a control apparatus comprising a water purging device for purging water which is generated during a power generation operation in the fuel cell stack, and which is held in the fuel cell units (0187). A control apparatus for a fuel cell stack according to claim 1, wherein the water purging device comprises: a purging valve which is connected to the other end of the fuel cell stack for regulating flow of water purged from the fuel cell units, and which is operatively connected to the control unit (0187). A control apparatus for a fuel cell stack according to claim 1, wherein the control unit is adapted to operate the electrical heaters and the water purging device prior to stopping of the power generation operation (0135-0136). A control apparatus for a fuel cell stack according to claim 1, wherein the control unit is adapted to operate the electrical heaters first, and then to operate the water purging device when a predetermined time has passed since the beginning of operation of the electrical heaters (0135-0136). A control apparatus for a fuel cell stack according to claim 1,wherein the fuel cell stack further includes a pair of terminal plates, each of which is disposed between each of the end plate and one of the fuel cell units disposed at each end of the fuel cell stack, and a pair of electrical insulators each of which is disposed between each of the end plates and each of the terminal plates, and wherein each of the electrical heaters is disposed between each of the terminal plates and each of the

electrical insulators (0260).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to insert the teachings of Hayashi et al., into the teachings of Ito et al., because by incorporating a heating device and a purging device, there is provided "a fuel cell which can self-heat in a short time, in which no reaction gas is necessary for combustion, thereby improving the starting performance at low temperatures" (Hayashi, 0010).

Response to Arguments

4. Applicant's arguments with respect to above claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Molter et al., U.S. Pat. Application Pub. 2004/0013923, teach a heater in endplates and water purging in a fuel cell system. Ballantine et al., U.S. Pat. Application Pub. 2003/0003330 A1, teach heating in endplates and water purging in a fuel cell system. Moulthrop et al., U.S. Pat. No. 6,887,601, teach heating in endplates and water purging in a fuel cell system. Lillis et al., U.S. Pat. No. 7,020,562, teach heating in endplates and water purging in a fuel cell system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela J. Martin whose telephone number is 571-272-1288. The examiner can normally be reached on Monday-Friday from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AJM